

Central and East Northland

Jack's lake (Central Northland), NRC Lake No. 180



Access point to Jack's Lake. (Photo: Aleki Taumoepeau 30 April 2018)

Summary

Surveyed 2001, 2005, and 2018.

Overall ranking

Moderate to low: This artificially dammed lake has little current ecological value, with the 2018 detection of an incursion of *Egeria densa*, most likely sourced from the neighbouring Lake Owhareiti, further reducing its value.

Threats

Situated on private property but used for recreation. Further pest introductions are unlikely.

Description

This dammed lake (1684321E, 6083377N), adjacent to Owhareiti, was created ~ 20 years ago. It is accessed via well-formed tracks across private pastoral land and ~ 20% of the catchment is in indigenous forest. The lake is 16.6 ha in size, 6.5 m depth and while the lake level is currently

maintained by a dammed outlet, it has been known to have dried out in the past (landowner pers. comm.). There is one inlet drain to the south of the lake, with no outlet. Boat access is difficult.

Wetland vegetation

The only tall emergent species recorded at the lake was *Eleocharis sphacelata* restricted to around 25% of the lakeshore, with grazing on much of the margin except for forest areas. The regionally uncommon *Gratiola sexdentata* was found in marginal turf areas and the pest plant *Glyceria maxima* was seen adjacent to the forest remnant in 2005, but neither were noted in the 2018 reconnaissance visit.

Submerged vegetation

In 2001, the submerged flora of this lake comprised 9 species, dominated by beds of *Chara australis*. These grew from 0.5 m to a maximum of 3.4 m with high covers. Other native species included *Myriophyllum propinquum*, *Potamogeton ochreatus*, *P. cheesemanii*, *Nitella hyalina*, *Elatine gratioloides* and *Glossostigma elatinoides*, along with the introduced *Ludwigia palustris* and *Potamogeton crispus*.

In 2005, the turf plant *Glossostigma elatinoides* was common, together with low covers of *Myriophyllum propinquum*, *M. triphyllum* and *Nitella pseudoflabellata* that were also restricted to the shallow margin in depths <1 m. Beyond 1 m depth the vegetation was equally dominated by *Potamogeton ochreatus* and the exotic *P. crispus* to a maximum depth of 2.9 m. *Chara australis* and *Potamogeton cheesemanii* were occasionally encountered to 2.5 m.

A similar assemblage of submerged species was recorded in 2018, with the invasive introduced oxygen weed *Egeria densa* and the introduced swamp lily *Ottelia ovalifolia* all new records for Jack's Lake. *Egeria* was locally common to depths of 2 m, but *P. ochreatus* remained dominant to depths of 3 m. Although present, *P. crispus* was not as abundant as in 2005, and was recorded as occasional in shallow water to 1.5 m deep.

LakeSPI

In 2005, the moderately low LakeSPI score of 50% (46% Native Condition Index; 43% Invasive Impact Index) reflected a restricted development of native vegetation and the presence of *P. crispus*. No LakeSPI score was generated in 2018, but the continued invasion of *Egeria* is likely to progressively increase the Invasive Impact Index and reduce LakeSPI, as is the case in the neighbouring Owhareiti.

Water birds

The restricted emergent vegetation provides limited water bird habitat, and the lake is fairly isolated. Black shag (*Phalacrocorax carbo*), black swan (*Cygnus atratus*) and mallard (*Anas platyrhynchos*) were noted during the visit. DOC SSBI reports regionally threatened dabchick (*Poliocephalus rufopectus*) and scaup (*Aythya novaeseelandiae*) in 1991, with only common species recorded by the more recent OSNZ survey.

Fish

Common bullies (*Gobiomorphus cotidianus*) were seen in 2005.

Aquatic invertebrates

The indigenous snails *Austropeplea tomentosa* was noted as abundant in the vegetation and stranded on the shoreline in 2018. *Potamopyrgus antipodarum*, pea mussel (*Sphaerium novaezelandiae*) and backswimmers (*Sigara arguta*) were recorded in 2005.

Endangered species

No threatened species have been observed in and around Jack's Lake on the three NIWA surveys, although the snail *Austropeplea tomentosa* has been designated a Data Deficient species by. This reflects a lack of recent collections of this widespread species, that has previously been collected from four Northland sites including Ōmāpere and Waiparera. The occurrence of this species is not used to generate an endangered species score for lake ecological value.

Lake Ecological Value

Jack's Lake ecological value rating is assessed as 4 "Moderate to Low", with a poorly buffered habitat, low biodiversity and no threatened species.

Threats

The risk of *Egeria densa* being spread to Jack's Lake from the neighbouring Owhareiti was identified in previous lake condition reports. This risk has been realised and this weed is likely to further expand to dominate this lake, as is the case in Owhareiti. As access to the lake is limited, further pest introductions are unlikely.

Much of the dam is bordered by pasture and nutrient enrichment is likely to continue unless livestock are excluded from lake margins.

Management recommendations

No monitoring recommended for this dammed water body with limited natural values and likely increasing impact from invasive submerged weed egeria. Further investigation of invertebrate fauna of Northland lakes would undoubtedly provide valuable information and better understanding of the distribution and abundance of this key component of the lake biota.